this year sent. They are of a greenish colour, with a strong spine on the back.

"Parrot fish" (*Ostracion*, Linnæus,) so called from the shape of the head and mouth I suppose, as also perhaps from the various and beautiful colours. Of these I send twelve specimens of two or three species; one specimen, although much faded and altered, is still very beautiful.

"Sea Horse," so called, I believe, from a fancied resemblance of the shape of the head to that of a horse. The specimen this year sent I picked up on the beach a few miles from Circular Head; it is of a different species to those usually caught in the rivers Tamar and Derwent. The tail differs considerably.

I think few, if any other, marine productions require notice. I cannot and do not devote much time to the pursuit, but I plainly see that much might be done. To a sincere lover of natural history, possessed of knowledge and the necessary means, a finer field than Van Diemen's Land could scarcely be found. Crabs are very various and curious; fish also. And indeed a good cask of spirits might be filled with sundries highly interesting to a scientific person.

Notes on the Fish. By John Edward Gray, Esq.

"The Nurse" is *Cestracion Philippi* of Cuvier, the *Squalus Philippi* of Schneider, figured as the Port Jackson shark in Philipp's Voyage, t. at p. 283. It is probable from their descriptions that neither Cuvier, Müller, nor Henle have ever seen this species, but were only acquainted with it from the figure above-cited; it is perhaps the only specimen now in European collections. It is much more nearly related to *Scyllium* than any other of the sharks. I am therefore induced to give the following description of the specimen sent by Mr. Gunn.

Cestracion Philippi: *muzzle* short; *nostrils* large, near the lips operculate; *operculum* subspiral (partly injured in the skinning); *events*? very small, low down on the cheek under the hinder angle of the eye; front *teeth* small, conical, compressed, lancet-shaped, the larger one with a small lobe on each side of its base; eyebrows elevated, ridge-like. *Dorsal fins* two, each with a spine in front; *anal fin* one; *caudal fin* deeply lobed: the front dorsal fin over the middle of the space

between the large pectoral and ventral fin, the second over the middle of the space between the ventral and anal fins. *Respiratory slips* five, the three hinder ones over the base of the pectoral fins: skin rough, grey, with two very indistinct darker lines on each side of the tail. There is a second species of this genus, from China, which I have described in my Zoological Miscellany, under the name of *Cestracion Zebra*, figured in Hardwick, Drawing of Cartilagineous Fishes, t. 5, which differs in the body being marked with broad black cross bands.

The "parrot fishes," or *Ostracions*, consist of three very distinct and beautiful species allied to *Ostracion auritus* of Shaw (Nat. Misc., ix. t. 338), for which I have formed a subgenus under the name of *Aracana*.

1. *Ostracion* (*Aracana*) *ornata*, Gray. Granular, white, with hexangular spots, leaving whitish reticulations; face and belly with alternate unequal dark and white oblique streaks; fins pale; front of dorsal and anal fin dark; caudal fin with a dark submarginal band and dark streaks between the strong caudal rays.

2. *Ostracion* (*Aracana*) *flavigaster*, Gray. Granular, pale, with dark longitudinal lines; under lip, throat, and beneath yellow; fins all whitish; front of anal and dorsal fin rather clouded; caudal rays slender.

3. *Ostracion* (*Aracana*) *lineata*, Gray. Rough, with tessellated ridges; whitish back, with irregular black marks; face and sides with crooked black streaks; belly and lower lips white; fins all whitish; rays of caudal fin slender; base of tail with three black streaks.

In some specimens of this species the spines (which agree in number and position in all these species) are very short and tubercular, and only rudimentary.

The specimen of *Ostracion auritus* figured by Dr. Shaw, is in the British Museum collection; it appears to be most allied to the last species, but differs from it in being larger and covered with small granules, and is of a nearly uniform brown colour; but this may arise from some imperfection in its original preservation.

In the British Museum there is also a fifth species of this section, sent from China by Mr. Reeves, which I figured in

the Indian Zoology (in t. —.) under the name of *O.* (*Aracana*) *auritus*. On comparison with these species it proved to be very distinct, and therefore I propose for the future to distinguish it as *Ostracion Reevesii*. It is much larger than any of the Australasian species. It is regular, granular, with three smooth rather arched bands on each cheek; in its present dry state it is of a uniform whitish grey colour, and much compressed, and higher than the species above described. The rays of the caudal fin are thick. Besides those named in the list there was also sent an *Apistes*, which appears to be new; it may be called *A. Tasmanensis*, Gray: when dry, lead colour, scaleless, suborbital and preopercular spine very long, produced; middle of dorsal fin with a large black spot; palatine teeth velvet-like.

Brit. Mus. Feb. 10, 1838.

X.—*On the Existence of Spiral Vessels in the Roots of Dicotyledonous Plants.* By the Rev. J. B. Reade, M.A., F.R.S.

To Richard Taylor, Esq.

Peckham, Feb. 10, 1838.

My dear Sir,

In the few explanatory remarks which I ventured to offer in Philosophical Magazine for Nov. 1837, on the chemical composition of vegetable membrane and fibre, I had occasion to allude to the existence of spiral vessels in the roots of dicotyledonous plants. The attention of English botanists being hereby directed to a statement somewhat at variance with received principles, I have been requested to furnish a more detailed account than the nature of my former communication permitted. I must beg, therefore, to avail myself of your valuable pages.

It has been usual to consider spiral vessels as peculiar to the structure of monocotyledonous roots, and as forming a distinctive character between the root and the stem of dicotyledons; and so thoroughly has this opinion of their position gained credit, that I have been able in no case to remove it but by giving ocular demonstration that it is in opposition to facts.

An attempt to trace to their origin the spiral vessels in the